REMARKS

Claims 85-92, 107-111 are pending and Claims 93-106 have been withdrawn. Claims 85-92, 107, and 108 have been rejected. Claims 85, 87, and 107 have been amended to recite scaling the first and second affinities prior to combining them. Support for the amendments can be found throughout the specification and claims, for example, in original Claim 87 which has been amended in view of the changes to Claim 85. New Claims 109-111 have been added. Support for the new claims can be found in the original claims and the specification. New Claims 109-111 are simply particular combinations of previous Claim 85 and previous Claim 87. No new matter is added by any of the amendments.

Claims 85-92, 107 and 108 are adequately definite under 35 U.S.C. §112, second paragraph

The Examiner has asserted that the element of determining "an affinity for the candidate peptide for said target protein" is unclear in that it is not certain if affinity refers to binding affinity or some other relationship. The term affinity is necessarily broad in order to protect the full scope of the invention and one of skill in the art will be well aware of the different types of affinity measurements that can be made. In addition, Applicants note that the term is also defined in the specification and that the definition is not indefinite. Applicants direct the Examiner to paragraph 0009 of the published application which states that "[t]he predictions of affinity that are produced by the methods can be presented in terms of the relative binding efficiencies of peptides, IC-50 values, and categorical binding affinities." Thus, the term affinity is sufficiently definite, when read in light of the specification and one of skill in the art would understand the metes and bounds of the claimed invention. Thus, Applicants request that the rejection be withdrawn.

Claims 85-92, 107, and 108 are novel over Parker

The Examiner has rejected Claims 85-92, 107, and 108 as being anticipated by Parker et al. (J. of Immun. 1994, 152:163-175, hereinafter "Parker"). In the rejection, the Examiner has asserted that Parker teaches (among other things):

--A program that uses experimental binding and sequence data for peptides (which is asserted to correlate to a first predictive method).

--A second program used to optimize the output of the first program and further determine a maximum tolerable value (which is asserted to correlate to a second predictive method).

--Ranking the coefficients (which is asserted to correlate with combining and evaluating the data).

--Normalizing the coefficients from programs to values between 0 and 1 and then obtaining an overall normalization coefficient (which is asserted as correlating with scaling the affinity).

Applicants respectfully disagree with the Examiner's understanding of the teachings of Parker and the way in which they are being applied in the present Office Action.

Parker does not teach determining two separate affinities.

Each of the independent claims indicates that the first predictive method is different from the second predictive method. However, as recognized in the Office Action, Parker only teaches one predictive method of providing a first affinity, and then optimizing that same affinity. Thus, Parker does not teach the different predictive methods as claimed. Moreover, Claim 85 recites scaling the affinities from the first and second methods before they are combined. Parker does not teach or suggest scaling the final, separately derived affinities before combining them. Additionally, Parker does not teach or suggest summing the affinities. The mere fact that the affinities are placed on a single table or are ranked is not the same as combining or summing the generated predicted affinities. One of skill in the art, in light of the specification, will appreciate that "combining" involves a mathematical operation between the two affinities. This is not achieved simply by listing the items on a table. Applicants note that the current amendments to the claims have further clarified this point, indicating that the affinities are scaled before they are combined. Thus, each predicted affinity is given a scaled or normalized value, and then they are combined (e.g., summed).

Thus, as Parker does not teach determining two affinities through two distinct methods and then combining the two affinities it does not anticipate the pending claims. As noted below, Parker, at best, might suggest scaling some sub-optimal result or initial data in deriving a first affinity. However, this is not the same as what is currently being claimed.

Parker does not teach the scaling methods recited in Claims 85, 107 and 109-111

Applicants have incorporated elements of Claim 87 into Claims 85 and Claim 107. The new claims also recite at least one of the elements described in previous Claim 87. The relevant section of Claim 87 recites:

> wherein the first and second affinities are scaled before they are combined, said scaling comprising a method selected from the group consisting of 1) linearly scaling each affinity so that it has a value between 1 and 0, 2) nonlinearly scaling each affinity so that it has a value between 1 and 0, and 3) scaling the affinity in a manner so a particular type of method can have a different weight, wherein a value is maintained between 1 and 0

Parker does not teach or suggest any of these methods of scaling in this particular step.

Applicants note that the Examiner did reject Claim 87 in light of Parker. However, the scaling recited in Claim 87 occurs to each of the affinities, before the affinities are combined, as each of the final individual affinities is scaled separately. In contrast, Parker appears to teach the normalization of various coefficients for Ala scanning in order to determine a first affinity (col. 2, p164). It appears that this single affinity in Parker is then optimized by a second program. Thus, Parker does not teach the element of scaling two separately determined affinities and then using the combination of these two scaled affinities for an evaluation of a single binding affinity for a peptide for a target protein.

Another difference between the teachings in Parker and what is presently claimed is that Parker teaches that in determining an affinity different target proteins should be used. For example, on page 164, col. 2, Parker uses the results from an alanine scan to produce coefficients, which are normalized and summed together to produce a first a binding stability.[1] However, an alanine scan uses different targets for the various coefficients (as each alanine scan represents a different peptide); thus, it involves different peptides and does not teach or suggest using a single candidate peptide.

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[1] Parker teaches that, in determining a single "binding stability," numerous coefficients, each of which represent a different amino acid and thus a different peptide, are multiplied together (for example, see Table 1, abstract, Mathematical modeling section, and Results, p. 165).

Additionally, the normalization step in Parker occurs before determining a binding stability of the candidate protein and the target protein. In other words, Parker does not appear to be normalizing the same item which is normalized in the present claims. In Parker, the values that appear to be normalized are not of the candidate protein to the target, but of an artificial construct relating to the alanine scanning process. (p. 164, col. 2). In contrast, the presently claimed invention determines two affinities of the same candidate peptide to the same target. These two affinities are then scaled and combined, allowing the evaluation of the combined value. Thus, the claimed method is clearly different as to what is being used (the same vs. different targets), and when and what is being scaled before combination. In particular, there is no teaching in Parker regarding the determination of a second affinity (by a different method), and then scaling these determined affinities, or combining them.

Applicants note that other references by Parker have been referred to in the present application, and appear to be similar to the instantly cited Parker reference. Again, the presently claimed invention involves a method of combining multiple such determinations to obtain a better assessment of the binding affinity. Thus, the teachings of these references are only relevant as one possible way of determining one of the recited affinities. Thus, while Parker's teachings could be part of the presently claimed method, it is not the inventive aspect of the claimed invention, which involves steps that occur after the method described in Parker.

As all of the claim elements are not taught or suggested by Parker, it does not anticipate Claims 85, 90 (which previously recited similar relevant elements), and 107 and claims that depend therefrom. Applicants request that the rejection be withdrawn and the claims allowed.

Claims 85, 86, 89, 107, and 108 are novel over Altuvia

The Examiner has rejected Claims 85, 86, 89, 107, and 108 over Altuvia. Applicants note that Claims 87 and 90 were not rejected in light of Altuvia and that Altuvia does not teach the elements of Claims 87 and 90. Independent Claims 85 and 107 have been amended to incorporate Claim 87. As such, amended Claims 85 and 107, as well as the claims that depend therefrom, are also novel because not all of the elements are taught by Altuvia. Thus, Applicants request that the rejection be withdrawn.

Claims 85, 86, 89, and 107 are nonobvious over the above references in combination with Rammensee et al.

The Examiner has rejected Claims 85, 86, 89, and 107 as being obvious over Rammensee in view of Altuvia. Applicants note again that Claims 85 and 107 have been amended to incorporate previous Claim 87. Neither Altuvia, nor Rammensee, nor any combination thereof teaches the elements of previous Claim 87. Thus, Applicants request that the rejection be withdrawn and the claims allowed.

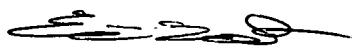
Finally, Applicants note that the amendments to the claims merely incorporate a dependent claim into the presently pending claims. Thus, these amendment should not require additional searching or raise any new issues that have not already been brought up in the present Office Action.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the pending claims are in condition for allowance and request the same. If, however, some issue remains that the Examiner feels can be addressed by Examiner Amendment, the Examiner is cordially invited to call the undersigned for authorization. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 5/15/06

By: 

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